DOCUMENT RESUME

ED 142 284 PS 009 381

AUTHOR Prescott, Elizabeth; David, Thomas G.
TITLE Effects of Physical Environments in Child Care Systems.
PUB DATE Apr 77
NOTE 20p.; Paper presented at the Annual Meeting of the American Educational Research Association (New York, New York, April 4-8, 1977)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Child Care; Childhood Needs; *Classroom Environment; *Day Care Services; *Early Childhood Education; Family Day Care; *Family Environment; Literature Reviews; *Physical Design Needs; *Physical Environment; School Size; School Space

ABSTRACT

This paper explores the role of physical environment in the design of child care programs. Examined are environmental variables thought to be important in determining the absence or presence of experiences considered important to children's development. Differences in the physical environment of a typical child care center and an average home are discussed. Variables to be considered in evaluating physical environment are: softness (the responsiveness of the environment, especially on a sensual-tactile level); privacy, density, size of facility, and quality of space (degree of complexity and variety and amount-to-do per child). A few research studies related to each of these variables are presented, along with a discussion of the outcomes of good space. (MS)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED142284

PS 009381

EFFECTS OF PHYSICAL ENVIRONMENTS IN CHILD CARE SYSTEMS

Elizabeth Prescott and Thomas G. David
Pacific Oaks College

In his book, The Creation of Settings and the Future Societies (1972), Seymour Sarason argues that the process of designing a building to house a new social program is frequently disruptive of the intended goals of the program. He cites his own experience in planning space for a regional center for the mentally retarded, and asserts that the resources, both material and human, that are expended in space planning and construction could be far more wisely spent in building the human organization of a program.

We would agree from our own experience that planning a new physical setting is one of the surest ways to create strain -- even in a stable organization. But we find it interesting that physical space, generally ignored and considered relatively unimportant, can spark such controversy and arouse such emotion. Placing issues of economic priorities temporarily aside, we suspect that the reason why changing any environment can cause upheaval is precisely because it tacitly reflects much of the character and nature of the organization which it houses.

Creating a new physical environment forces clarification of an organization's mission and, in so doing, exposes any existing confusion or differing individual concepts of that mission. Likewise, planning

space facilities new insight into the influence that the environment exerts, an influence that often remains unseen and unexamined until such decisions must be made. This relative invisibility, which E.T. Hall has aptly called the "hidden dimension" of human activity, is largely responsible for the fact that, until recently, the quality of life in physical settings was a subject rarely addressed in policy forms such as this.

What attention has been devoted to physical environments has generally focused on issues of safety or public health. Glib quantitative standards for hardware or lighting have proliferated. Little effort has been made to determine the effects of environments on the behavior and psychic well-being of their inhabitants. In our view, more energy has been expended to generate a regulatory structure than to investigate the substance of life in environments.

The issues we face in examining day care environments are somewhat different from those discussed by Sarason. Rarely have the providers of child care been burdened with government funds earmarked for the construction of new facilities to ensure the symbolic "concretization" of their programs. Indeed, the problem has too often been the reverse -- programs forced by financial necessity to operate in marginal "found" spaces. As Donald Cohen (1974) has noted,

> The physical setting of a day care program is the product of compromises and adjustments. It is doubtful that any existing program has an ideal facility -- not only because of cost limitations, but also because there is no completely satisfactory way to reconcile program goals with a setting's physical limitations.

Observation in a variety of day care settings reveal this uneasy compromise between program and setting in practice. A family day care mother who cares for children in her own home may lack play materials or adequate outdoor space. This need to locate center care conveniently close to parents' work places can have negative consequences in terms of the types of space available. Large centers may take on a classroom appearance to facilitate the management of a large number of children for a nine or ten hour day.

An immediate problem in analyzing day care programs is that they differ in at least three major aspects:

1. Type -- home care; family day care; center care
2. Constraints -- licensing regulations; zoning
3. Practical Considerations -- availble/affordable space, etc.

Given these differences, what general themes can be identified that might serve as criteria for comparisons in examing the role of the physical environment in child care? In a position paper we prepared for the Office of Child Development on the proposed FIDCR regulations (Prescott and David, 1976), we identified a wide range of issues relating to physical space. Time constraints will only permit a review of a few particularly salient ones.

Because the interaction of young children with their physical surroundings tends to be direct and easy to observe, the role of the environment in day care settings is not as obscured as it might be in other settings. Also, because young children operate on a level of

sensory learning that most adults no longer enjoy, attention to detail in space planning is essential. Every aspect of space communicates messages to the young child to which adults may be insensitive. As Bruno Bettelheim notes in A Home for the Heart (1974),

> Every detail of building, action and attitudes is a carrier of symbolic meaning...the ways in which an institution is built and furnished -- down to the last detail of its light fixtures and chinaware -- must convince the patient that this is a place he is truly welcome. (p. 128)

Just as Bettelheim sees the physical environment playing an an active role in the therapeutic program of his Orthogenic School, so we can expect it to shape and set the tone for a child care program. The case of day care is actually not so far removed from that of Bettelheim's therapeutic milieu, in that its central objective is to create a setting for living, for growth, and for the support and affirmation of the individual child. Unlike other institutions designed to serve some special goal (e.g. school: learning, hospital: treatment) with children considered only as the "target population," day care's central goal should be responding to the needs of children. Although schools are convenient comparison points and, as noted before, many child care program seem to have adopted the school as their model, day care is not school. Rather, it is a substitute for home -- a place where adults and children live together.

We think that this distinction between a home and a school is an important one and that it provides a fruitful comparison point of judging the quality of day care environment. From the viewpoint of ecological

analysis, the behavior setting of the home is quite different from that of the school, not only in the range and frequency of activities and subsettings that occur there, but also in the dimension of feeling which permeates it. Bettelheim (1974) captures the difference nicely when he writes, "Our 'home' is what should give security and structure to our life; tangibly it houses our body, and symbolically our soul."

Of course not all homes fit within a single model, and certainly all homes do not provide an ideal environment for individual growth. Moreover, the use of space in the home is an area of inquiry from which little systematic data has been generated. Other definitions of "home" may not coincide with ours, but for us home has certain environmental properties. Home is a personalized environment, where learned associations go with particular spaces, arrangements and furniture pieces. It offers the security and comfort that accompanies the clear boundary between private yet shared family space and impersonal public space. The implicitly shared and evolving "rules" for space use in the home grow naturally from needs and functions, and are quite different qualitatively from the explicit and imposed rules that govern other spaces. Learning to operate within the informal rules of the home is a process of developing competence in the young child via participation in daily activities. This type of participation is legitimized and encouraged naturally in the home.

Finally, the home is a source of identity. It both shapes and affirms the child's sense of who he is. With increased familiarity,

that sense of self gradually includes one's surroundings, developing a "sense of place," an identification of self that includes reference to a particular setting and constellation of physical stimuli.

And although the human environment of the home is of central importance, just as it is in day care, the social and physical realities cannot be separated. While a sensitive, warm and competent staff is absolutely essential, the interaction and communication of the child with both the staff and the physical environment cannot be ignored. The physical environment inevitably shapes the messages which are communicated to the child. For this reason we think that it is instructive to look closely at some environmental variables which differ markedly between the average home and the typical center. Moreover, these variables appear to be important in determining the presence or absence of experiences which are thought to be important to children's development.

Softness

Softness is a dimension which we have found to be predictive of much that happens in a day care program. The softness rating (part of the Day Care Environmental Inventory; Prescott et al. 1975) was so named because it appeared to indicate the responsiveness of the environment of the child, especially on a sensual-tactile level. It was based on the presence or absence of eleven components, among them malleable materials such as play dough; sand which children can

be in; large rugs or carpeting indoors; child/adult cozy furniture (wickers, couches); dirt to dig in; grass to play on, animals to play with, etc.

When the softness rating is applied to centers, closed structure centers (those in which teachers make most of the decisions on initiating activities) characteristically offer three or less of these opportunities, while open centers (where children are encouraged to choose activities) more commonly make them available. Homes abound in softness -- they have couches, pillows, chocolate pudding to help make, water play in the back yard in hot weather. Dogs and cats are common in home settings and are not found in group settings. Where these components are lacking there may not be sufficient opportunities for tactile sensory exploring.

Settings with a high softness rating also provide more opportunities for privacy than settings which are low on this dimension. It is easy to curl up on the rug under a table or to get away by putting a blanket over an easy chair. This sort of escape is difficult in a setting which has a linoleum floor and traditional classroom furniture. We have found that closed structure group care was particularly devoid of private places.

Privacy

Wolfe and Laufer (1974) conducted an interview study with children aged 5 to 17 on their conceptions of privacy. Although 53% of the 5-year-olds couldn't give a definition of the concept "privacy", almost all of them could define it in the context of an activity. For most of these youngest children, privacy meant "quiet" and/or quiet as a condition

for engaging in an activity.

Naturally, the complexity of the children's definitions of privacy were related to their ages, but Wolfe and Laufer were able to identify four major types of privacy that were most important to children:

1. controlling access to information (e.g., secrets, not having others know something you know, etc.)

2. alone (to be by oneself)

3. no one bothering me (freedom from distraction)

4. controlling access to spaces (having a place of one's own to which one could limit the access of others).

In homes, one of the important ways in which the adult regulates children's experience is through the judicious use of private or protected boundaried areas. Children also intuitively self-select such areas. The fact that a child at home can crawl into a big easy chair, settle under the dining room table, or take a soothing bath in a smooth, boundaried tub before nap time, contributes to the well being of everyone involved. These are ways in which children can have privacy to pursue their own ideas and regulate their own needs for active and quiet time. In family day care many opportunities for privacy still exist. In group care, private corners are often strikingly absent and their creation takes thought and ingenuity.

We have used a measure of intrusion-seclusion potential as one of the components of our rating of good space in pre-school age

and school age day care (Prescott, Kritchevsky and Jones, 1972; Prescott and Milich, 1975). Intrusion-seclusion potential was calculated by counting:

(1) Insulated units, areas which provide "protection" for three or four children. Examples: a block building area set off by low shelves; a housekeeping corner blocked off from the rest of the room by sink and stove.

(2) Hide areas, cozy private space which usually have room for one or two children. Examples: barrels, small crates, a play house.

Tars and Appleby (1973) compared the behavior of a ten-year old boy at home with his behavior in a hospital. They noted that although he encountered many more people in the institution, he interacted with others less than he did at home. His home offered fewer activities, but he engaged in them for longer periods of time. He explored more and had more privacy at home. Although institutional settings may surround children with more people and many more things to do, the opportunities they offer are more structured, and by necessity they limit freedom of choice.

Density

Although it is not uncommon in a traditional schoolroom to allow only 20-25 square feet of floor space per student for a sedentary curriculum, the space requirements of a day care program should be substantially different. Most states have recognized this fact and have recommended minimum space requirements of 35 sq. ft/child indoor space and 75 sq. ft/child outdoor space. Characteristically even small homes provide

square footage which greatly exceeds these requirements.

Along with the proliferation of recommended standards for density, there have been a number of experimental investigations of the effects of varying density on the behavior of young children. This experimental evidence suggests that current standards have failed to specify enough space per child. Among the findings are the following three studies:

McGrew (1970) distinguished between two types of density: social density (in which varying numbers of people occupy the same fixed space) and spatial density (the dimensions of the space are changed while the population remains fixed). In a study of varying social and spatial density with 3 and 4 year olds, she observed more proximity behaviors at low density and a trend to less physical contact at high density. McGrew contends that social factors predominate in density effects in that a subtle spacing mechanism keeps interpersonal distances relatively constant even with a switch to high density.

A recent investigation by Rohe and Patterson (1974) varied both spatial density and the amount of material available in a day care center. As density increased, they observed an increase in aggressive destructive and unoccupied behavior. As the amount of resources increased, cooperative, constructive and relevant participation increased (irrelevant participation decreased). The marked increase of negative interaction under the high density/low resources condition observed by Rohe and Patterson seems critical to the interpretation of the other

density studies. Density is more than just the amount of available space; it is linked to the arrangement of that space and the types of resources available in that space as well. Rohe and Patterson cite the optimal day care environment as one of low density (at least 48 square feet per child) and high resources. Under this condition they found the highest percentage of relevant participation and constructive behavior. Associative and cooperative behaviors were reasonably high as well. If high density is unavoidable, they suggest increasing the amount and quality of resources to provide activity options.

Shapiro (1975) in a survey of 17 half-day preschool programs in New York supports Rohe and Patterson's finding that both spatial density and resources are important. She recommends a density between 30 and 50 square feet and notes the importance of the organization of space and clear boundaries between activity areas as a precursor to involvement behavior. Her main complaint against the lower density settings (52 square feet per child) was the lack of clear organization -- a situation that could be remedied via rearrangement of the existing space.

Size of Facility

We have also found that the sheer size of a day care facility stands out as a dependable predictor of program quality. In a large center it is difficult to avoid schedules in which groups of children and their teachers simply must arrive at expected activities on time. The first group assigned to a toilet room cannot be late without making other groups late in turn; snack time must end in time for lunch

procedures to begin, etc. Furthermore, the large amount of space per se and the large numbers of children apparently act to impede freedom of movement and freedom of choice for children and staff. The nature of large size creates a peculiar set of problems which require that goals of "meeting the schedule" be given priority. These goals frequently have little or nothing to do with the needs of individual children, and often they directly interfere with meeting these needs.

Young children cannot comprehend the necessities behind these impersonal forces. Staff members, especially if they are naturally sensitive and responsive, also feel uneasy with the regimentation which they must impose. Good staff members find it hard to accept this kind of ambivalence. Since many will leave for jobs more to their liking, the large center tends to accumulate staff members who are "rule-enforcers."

In our 1967 study (Prescott and Jones) we noticed that in those centers which served over 60 children, as compared to those enrolling 30-60 children, there was significantly more emphasis on rules and routine guidance. Staff emphasis on control and restraint was 2½ times higher, and a global rating of teacher manner was often rated neutral or distant and almost never was rated as sensitive. Conversely, in smaller centers emphasis in these areas was low, but provision of opportunities for pleasure, wonder, and delight was significantly higher.

In addition, we found that large centers almost never offered

children the experience of participating in wide age range groups. (Our data indicated that settings inhabited by children of mixed ages work very well in full day care, offering many more opportunities for children to serve each other as models and facilitators as well as greatly enriching the possibilities for play). Large centers were also found to have play areas which rated low on organization, variety, and amount-to-do per child. These differences in grouping and in richness of play possibilities available within the physical space were associated with a program format which offered fewer opportunities for children to initiate and to choose than the program format most commonly utilized in centers of moderate size. Homes operate on a much smaller scale. In family day care only a small percentage of homes have more than five children.

Fiene (1973) examined the verbalizations of 48 children 36-40 months of age in 16 family day care, 16 group day care and in 16 home settings. He found that the number of complex verbalizations was highest in family day care and lowest in center care. He proposed that the difference is due to the smaller group size in family day care as compared to center care and to the way in which center biases affect play in activity areas.

In large centers children were seldom observed to be highly interested and enthusiastically involved. These findings on the relationship of size to amount of personal involvement are not unique to our study, but have been corroborated in other kinds of settings

such as schools and factory work groups (Barker, 1968). Large centers did have better trained teachers and an absence of crowding. Although both of these factors typically were predictors of sensitive teacher interaction, this relationship was reversed for large centers.

We have seen good large centers, but still maintain that, although a large center offers more complexity, it has great potential for providing an impersonal, regimented environment. A large center must be skillfully administered and it must have space which permits privacy and autonomy to children. A large center does not work automatically. It has to be planned around the needs of small children. All too often, a large center takes the form of a gigantic box embedded in a sea of asphalt. When so many features of the environment are predetermined it becomes difficult for the staff to develop a process that encourages real creative problem solving.

Outcomes of good space

In our observational study of 50 day care settings (Prescott, Jones and Kritchevsky, 1967) we rated the quality of physical space according to the degree of complexity and variety and amount to do per child it offered and other special problems we identified. We found that the quality of space directly affected the degree of freedom permitted both adults and children.

If the arrangement of space and materials enabled the child to explore activities and make choices on his own, he was more interested and involved. Such an arrangement changed the adult role from that of

supervisor or rule enforcer and permitted more adult-child interaction on a one-to-one basis. When the adults dealt with children as individuals, they became more aware of individual differences and needs. Consequently, the program evolved to better respond to those needs. The product was child involvement and more sensitive, friendly and encouraging adult behavior.

If space was of low quality, the freedom of both adults and children was limited. Adults were forced to assume more responsibility for order and activity and their behavior was more neutral and insensitive. Their emphasis tended to be on guidance and restriction rather than interaction. The children were also less likely to be involved and interested.

In a study of day care for school age children (Prescott and Milich, 1974) we observed in 29 settings and again noted the relationship between good space and a program of high quality. Good space provides for indoor-outdoor accessibility, so that choices are available and children can decide whether to be inside or outside. Good space includes softness for comfort, insulated areas to protect from intrusion, and storage, so that there are places to keep unusual equipment and plenty of supplies. Furthermore, a good program, even when it involves the most skilled adults, does not occur in a vacuum. It is grounded and held together by <u>good space</u> where activities can occur, and by <u>objects</u> -- the supplies and equipment which are essential to the activity. Tasks with a purpose grow out of these kinds

of spaces, and learning to order and control the space to keep the tasks going becomes another dimension of complexity, that of maintaining, in cooperation with others, a workable living space.

We chose the home as an initial point for comparison because we felt it exemplified the larger goal of creating an environment which responds to the needs of the child. We recognize, though, that the creation of settings for day care can offer unique opportunities to provide an environment perhaps still more responsive to young children than a home may be. For example, there are the issues of access and of scale. Lili Peller, in her classic paper "The Children's House" (1972), argues for a setting that supports the child's acquisition of competence:

> The young child's needs are our guide in planning his house. He has the great urge to play; in order to play well he needs protection from danger as well as from unnecessary interference, and he needs judicious help. The young child should have surroundings which he can explore, understand, and use. He needs an environment which is a complement to his intelligence, permitting him to be self-steered, to use his abilities, to make mistakes without endangering himself or others. At home the emphasis is necessarily on the things he cannot do for himself, in the children's house the burden of being small in size, weak, and impotent can be effectively lessened.

It is important to ask how well the day care setting balances opportunities for stimulation and exploration with the stability a young child needs. As Leanne Rivlin (1975) has pointed out, we know about the child's need for stimulation and of the adverse effects of stimulus deprivation, but we know far less about the effects of over-

stimulation, i.e. too much change without opportunities to internalize or adjust adequately.

The value of a stable setting, Rivlin notes, is that,

> It acts as a frame of reference, a safe and known core from which to view the world and later move out and then back. The stable core can stimulate exploration of the close areas as well as those outside.

One factor that can increase a child's sense of stability is his ability to claim "ownership" of some part or parts of the environment. The environemental dimensions discussed here describe, we think, some of the ways in which children may experience themselves as competent and appropriately powerful -- or powerless.

Day care settings that are designed with the home as their model, that support the activities of living for children and adults, approach the goal Peter Prangnell (1969) has articulated of creating "friendly objects":

> If our buildings and our cities are made as friendly objects, they will invite and precipitate our participation.... They will stimulate, through participation, our creative powers which are the basis of growth in all our activities. If, in all our plans, we recognize this need to grow as our prime objective, all aspects of organization and administration will take their appropriate and reasonable place.

References

1. Barker, Roger C. Ecological Psychology: Concepts and Methods for Studying the Environment of Human Behavior, Stanford: Stanford University Press, 1968.

2. Bettelheim, Bruno. A Home for the Heart, New York: Alfred A. Knopf, 1974.

3. Cohen, Donald J. Day Care 3: Serving Preschool Children, Washington, D.C.: Office of Child Development, 1974.

4. Day, David E. and Sheehan, Robert. Elements of a better preschool, Young Children, 1974, 30, 15-23.

5. Fein, Greta G. and Clarke-Stewart, Alison. Day Care In Context, New York: John Wiley and Sons, 1973.

6. Fiene, Richard J. "The Differential Structural Characteristics of Sentences Formed by Preschool Children in Family and Group Care Centers," (mimeo) Department of Psychology, SUNY Stony Brook, August 1973.

7. Golan, Marion B. et al. "Children's Environments Evaluation Research: Built Environments" paper presented at Environmental Design Research Association 7th Annual meeting, Vancouver, B.C., 1976.

8. Hall, Edward T. The Hidden Dimension, Garden City, NY: Doubleday and Company, 1966.

9. Kritchevsky, Sybil and Prescott, Elizabeth with Lee Walling. Physical Space: Planning Environments for Young Children, Washington, D.C.: NAEYC, 1969.

10. McGrew, P. Social and spatial density effects on spacing behavior in preschool children, J. of Child Psychology and Psychiatry, 1970, 11, 197-205.

11. Peller, Lili. "The Children's House,: reprinted in Man-Environment Systems, 1972, 2, 221-232.

12. Prangnell, Peter. The friendly object, Harvard Educational Review, 1969, 39, 36-41.

13. Prescott, Elizabeth and Jones, Elizabeth with Kritchevsky, S. Group Day Care as a Child-Rearing Environment. Final Report to Children's Bureau. Pasadena, Calif.: Pacific Oaks College, 1967.

14. Prescott, Elizabeth. "The Large Day Care Center as a Child-Rearing Environment". Voice for Children, 2: No. 4, May 1970.

15. Prescott, Elizabeth: Kritchevsky, Sybil and Jones, Elizabeth. The Day Care Environmental Inventory. Pasadena, Calif.: Pacific Oaks College, 1972.

16. Prescott, Elizabeth and Milich, Cynthia. School's Out. Pasadena, Calif.: Pacific Oaks College, 1974.

17. Prescott, Elizabeth et al. Assessment of Child-Rearing Environments: Part I.: Who Thrives in Group Day Care: Part II: An Environmental Inventory. Pasadena, Calif.: Pacific Oaks College, 1975.

18. Prescott, Elizabeth and David, Thomas G. The Effects of the Physical Environment on Day Care, Washington, D.C.: Office of Child Development, (in press-1976).

19. Riblin, Leanne. "Buildings for Children," paper presented at the Conference on Ecological Factors in Human Development, International Society for the Study of Behavioral Development, University of Surrey, July 1975.

20. Rohe, William and Patterson, Arthur H. "The Effects of Varied Levels of Resrouces and Density on Behavior in a Day Care Center" in Carson, D.H. (ed.) Man-Environment Interactions, EDRA, 1974.

21. Sarason, Seymour B. The Creation of Settings and the Future Societies, San Francisco: Jossey-Bass, 1972.

22. Shapiro, Sylvia. "Preschool Ecology: A Study of Three Environmental Variables" Reading Improvement, 12: 236-241, 1975.

23. Tars, Sandra and Appleby, Lawrence. "The Same Child in Home and Institution." Environment and Behavior, 5 (1) : 3-28, 1973.

24. Wolfe, Maxine and Laufer, Robert. "The Concept of Privacy in Childhood and Adolescence" in D.H. Carson (ed.) Man-Environment Interaction, Milwaukee: EDRA 6: 29-54, 1974.